

इंटरनेट

मानक

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“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 11938 (1987): Tool Adaptors for Numerically Controlled Machine Tools (Tool Rotating Type) [PGD 32: Cutting tools]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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*Indian Standard***SPECIFICATION FOR  
TOOL ADAPTORS FOR NUMERICALLY CONTROLLED  
MACHINE TOOLS ( TOOL ROTATING TYPE )**

**1. Scope** — Covers the dimensions and requirements of tool adaptors required for mounting on numerically controlled machine tools ( tool rotating type ).

**1.1** The tool shanks shall be according to IS : 11173 ( Parts 1 and 2 )-1985 'Recommendation for tool shank 7/24 taper for numerically controlled machine tools with automatic tool changers ( tool rotating type ) : Part 1 Tool shanks and Part 2 Retention knobs '.

**2. Types** — Types of adaptors are given in Table 1.

**3. Dimensions and Tolerances** — Shall be as given in Tables 2 to 11.

**4. Material** — Shall be alloy steel having tensile strength not less than 800 MPa in the core after case-hardening.

**5. Hardness** — Shall be 590 to 670 HV after case-hardening.

**6. General Requirements**

**6.1** The tolerances on dimensions without specified tolerances shall be of class of deviation 'medium' according to IS : 2102 ( Part 1 )-1980 'General tolerances for dimensions and form and position: Part 1 General tolerances for linear and angular dimensions ( *second revision* )'.

**6.2** Suitable screws for adjustment and clamping the tools shall be provided along with the adaptors.

**6.3** The adaptors shall be free from cracks, burrs and other manufacturing defects.

**7. Designation** — The designation of the tool adaptors shall be as given in the relevant tables.

**8. Marking** — The tool adaptors shall be marked with the designating sizes and manufacturer's name or trade-mark.

**8.1 Certification Marking** — Details available with the Bureau of Indian Standards.

**9. Protective Coating and Packing** — Tool adapters shall be covered with suitable rust proofing material and wrapped in non-absorbent paper and packed in suitable bores for safe handling and transport.

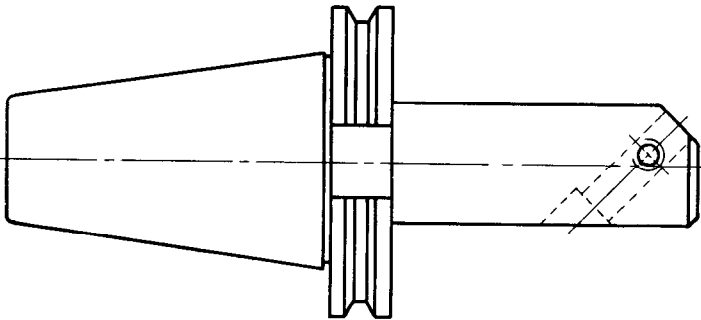
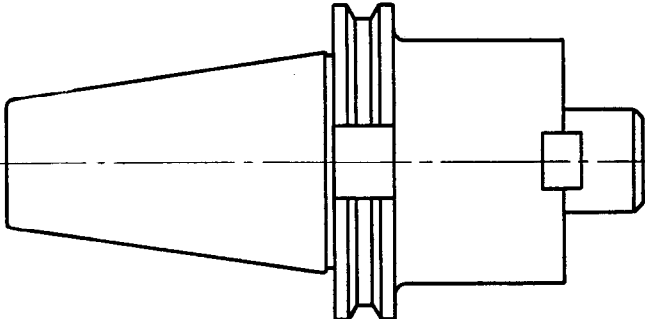
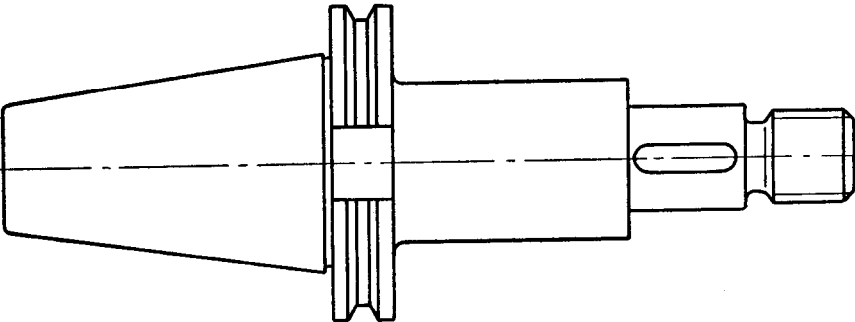
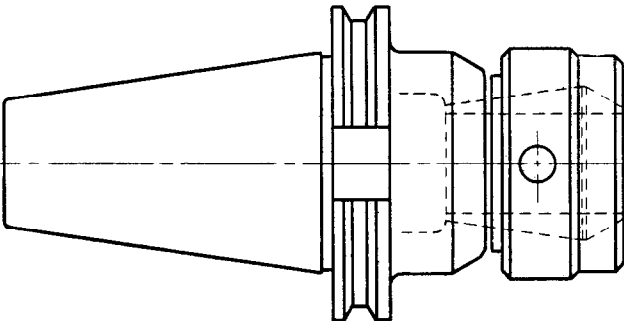
Adopted 23 March 1987

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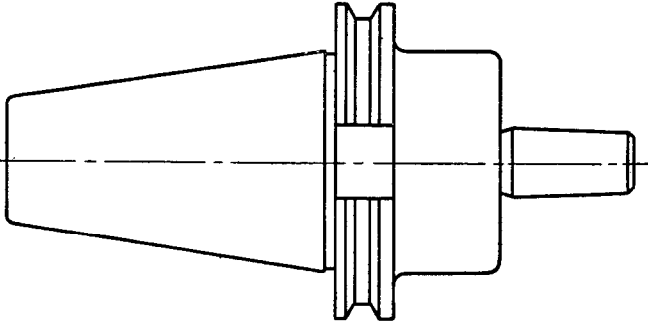
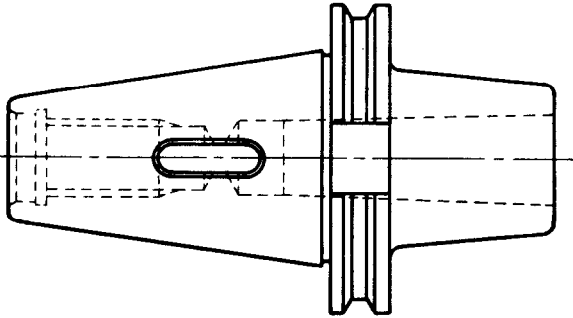
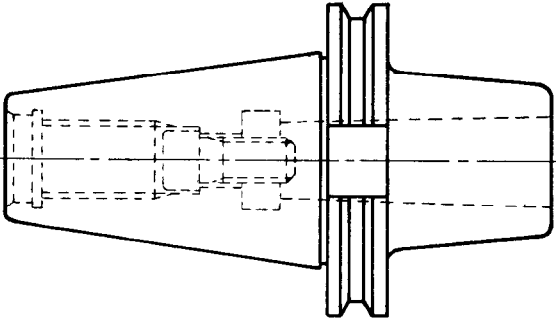
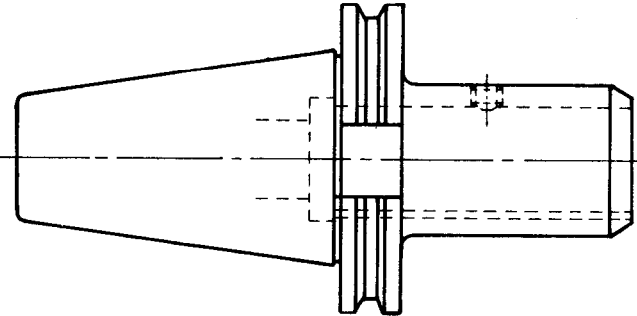
BUREAU OF INDIAN STANDARDS  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

**TABLE 1 TYPE OF TOOL ADAPTORS**  
( Clause 2 )

Type	Description	Sketch
1	Boring bars for tools with square/round shanks	
2	Adaptor for face, shoulder and deep shoulder mills	
3	Adaptor for tools with key drive	
4	Adaptor with collet chuck for parallel shank tools	

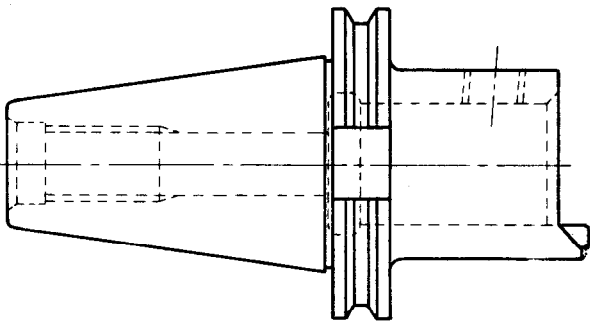
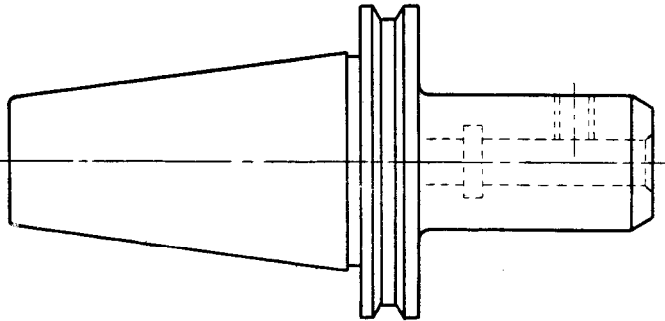
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TABLE 1 TYPE OF TOOL ADAPTORS — *Contd*

Type	Description	Sketch
5	Adaptor for drill chucks	
6	Adaptor for tools with morse taper shanks (tanged end)	
7	Adaptor for tools with morse taper shank (threaded end)	
8	Adaptor for adjustable adaptors with tools with self-holding taper shanks	

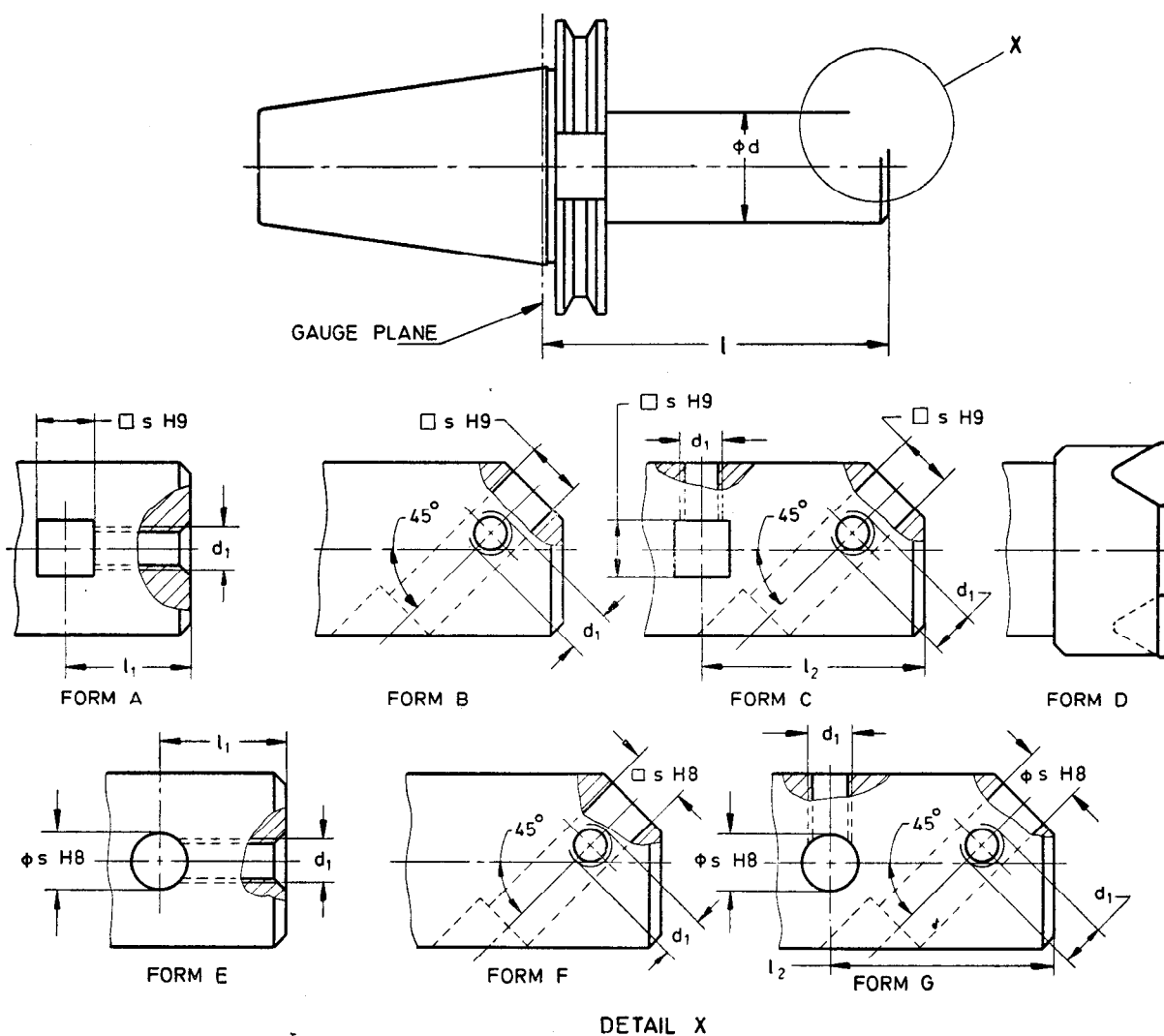
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TABLE 1 TYPE OF TOOL ADAPTORS — *Contd*

Type	Description	Sketch
9	Adaptor for tools with parallel shank having inclined flat	 A technical sketch of a tool adaptor. It features a conical tool holder on the left, a central cylindrical section with longitudinal grooves, and a parallel shank on the right. The shank has a flat top surface that is inclined relative to the central axis, indicated by dashed lines and a diagonal line. The shank ends in a small, angled cut.
10	Adaptor for tools with parallel shank	 A technical sketch of a tool adaptor. It features a conical tool holder on the left, a central cylindrical section with longitudinal grooves, and a parallel shank on the right. The shank has a flat top surface that is parallel to the central axis, indicated by dashed lines. The shank ends in a small, angled cut.

**TABLE 2 DIMENSIONS FOR BORING BARS FOR TOOLS WITH SQUARE/ROUND SHANKS — TYPE 1**  
( Clause 3 )

All dimensions in millimetres.



Designation	Total Shank Designation	d									l
		16	20	25	32	40	50	63	80	100	
1-A 40-d-Form-/	A 40 B 40	—	—	—	—	—	—	—	—	—	100
or		—	—	—	—	—	—	—	—	—	160
1-B 40-d-Form-/		—	—	—	—	—	—	—	—	—	250
1-A 45-d-Form-/	A 45 B 45	16	20	25	32	40	50	63	80	100	100
or		—	—	—	—	—	—	—	—	—	160
1-B 45-d-Form-/		—	—	—	—	—	—	—	—	—	250
1-A 50-d-Form-/	A 50 B 50	16	20	25	32	40	50	63	80	100	100
or		—	—	—	—	—	—	—	—	—	160
1-B 50-d-Form-/		—	—	—	—	—	—	—	—	—	250

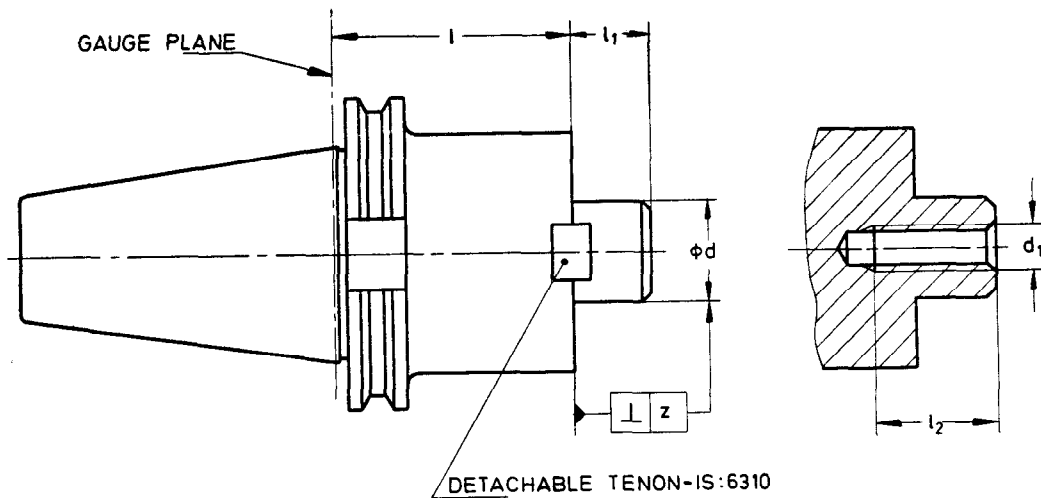
d	16	20	25	32	40	50	63	80	100
d <sub>1</sub>	M4	M6	M8	M10	M12	M16	M20		
l <sub>1</sub>	12	18	23	28	35	46	48	54	
l <sub>2</sub>	20	30	32	40	46	58	60	78	96
s	6	8	10	12	16	20	25	32	

**Note** — Position of s with respect to the axis of the bore shall be specified by the user.



**TABLE 3 DIMENSIONS FOR ADAPTORS FOR FACE, SHOULDER AND DEEP SHOULDER MILLS — TYPE 2**  
( Clause 3 )

All dimensions in millimetres.



Designation	Tool Shank Designation	$d$ h6	$l$	$l_1$ Max	$d_1$	$l_2$	$z$
2-A 40-d-l or 2-B 40-d-l	A 40 B 40	22	50	19	M 10	28	0.006
		27		21	M 12	32	
		32	63	24	M 16	36	0.008
		40		27	M 20	45	
2-A 45-d-l or 2-B 45-d-l	A 45 B 45	22	63	19	M 10	28	0.006
		27		21	M 12	32	
		32	80	24	M 16	36	0.008
		40		27	M 20	45	
		50	125	30	M 24	50	
2-A 50-d-l or 2-B 50-d-l	A 50 B 50	22	80	19	M 10	28	0.006
		27		21	M 12	32	
		32	100	24	M 16	36	0.008
		40		27	M 20	45	
		50	125	30	M 24	50	

**Note 1** — Use clamping screws as per IS : 8621-1977 'Retaining screw for milling arbors' for face and shoulder mills.

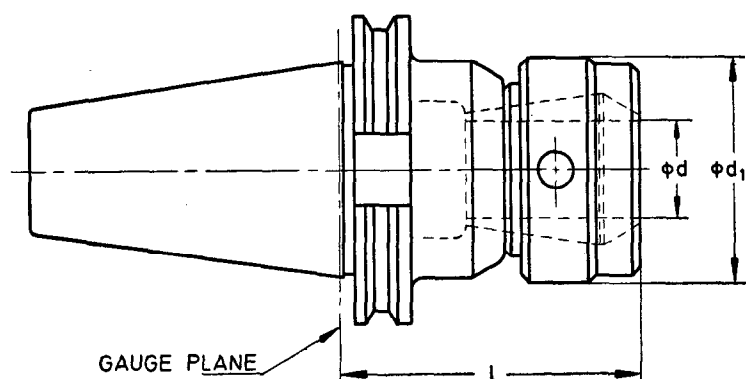
**Note 2** — Use clamping screw as per IS : 2269-1967 'Hexagonal socket head cap screws ( second revision )' for deep shoulder mills.



**TABLE 5 DIMENSIONS FOR ADAPTORS WITH COLLET CHUCK FOR PARALLEL SHANK TOOLS — TYPE 4**

( Clause 3 )

All dimensions in millimetres.



Designation	Tool Shank Designation	Collet Base Dia $d$ , Max	$l$					$d_1$ Max
4-A 40-d-l or 4-B 40-d-l	A 40 B 40	26	63	80	100	—	—	60
4-A 45-d-l or 4-B 45-d-l	A 45 B 45	26	63	80	100	140		60
4-A 50-d-l or 4-B 50-d-l	A 50 B 50	26	—	80	100	140	160	60

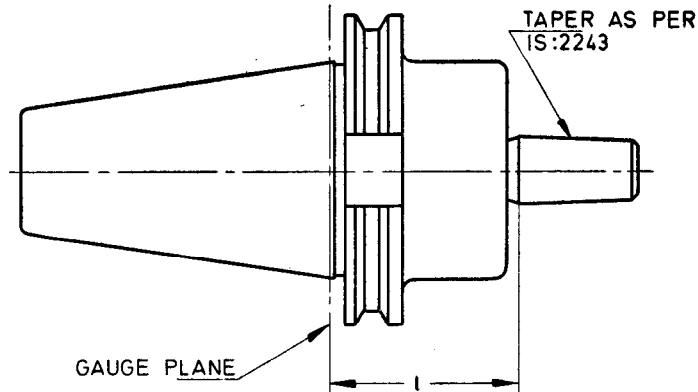
**Note 1** — Adaptors are suitable for collets type CON-40 as per IS : 6238-1971 'Spring collets'.

**Note 2** — Adaptors shall be supplied without collet.

**TABLE 6 DIMENSIONS FOR ADAPTORS FOR DRILL CHUCKS — TYPE 5**

( Clause 3 )

All dimensions in millimetres.



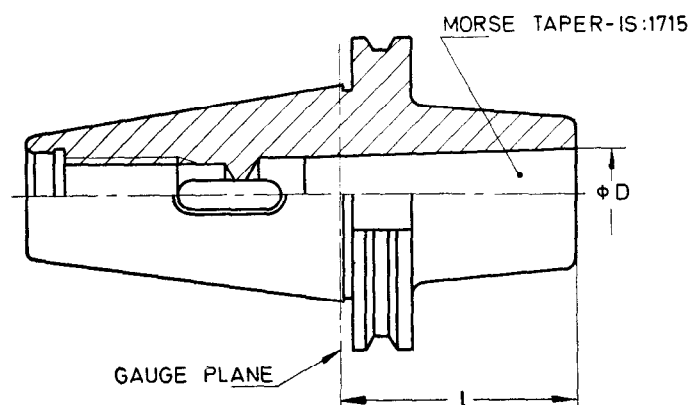
Designation	Tool Shank Designation	Designation of Taper	I	
5-A 40-Taper No.-/ or 5-B 40-Taper No.-/	A 40 B 40	B 10	50	100
		B 12		
		B 16		
		B 18		
5-A 45-Taper No.-/ or 5-B 45-Taper No.-/	A 45 B 45	B 10		
		B 12		
		B 16		
		B 18		
5-A 50-Taper No.-/ or 5-B 50-Taper No.-/	A 50 B 50	B 10		
		B 12		
		B 16		
		B 18		
		Jacobs Taper No.		
5-A 40-Taper No.-/ or 5-B 40-Taper No.-/	A 40 B 40	2	50	100
		3		
5-A 45-Taper No.-/ or 5-B 45-Taper No.-/	A 45 B 45	2		
		3		
5-A 50-Taper No.-/ or 5-B 50-Taper No.-/	A 50 B 50	2		
		3		

**Note** — Adaptor supplied without drill chuck.

**TABLE 7 DIMENSIONS FOR ADAPTORS FOR TOOLS WITH MORSE TAPER SHANKS  
( TANGED END ) — TYPE 6**

( Clause 3 )

All dimensions in millimetres.

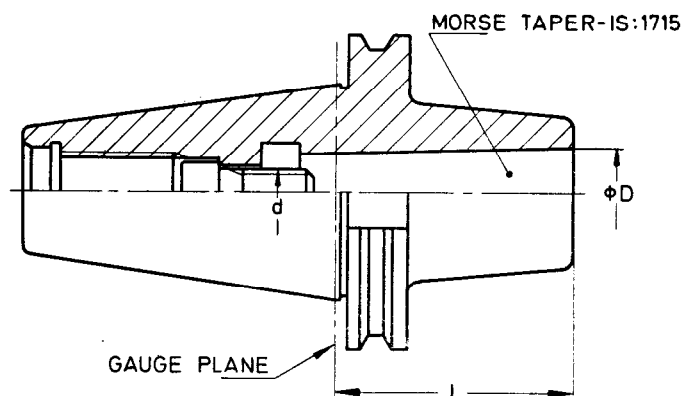


Designation	Tool Shank Designation	MT No.	l				D
6-A 40-MT No.-/ or 6-B 40-MT No.-/	A 40 B 40	MT 1	50				12·065
		MT 2	50				17·78
		MT 3	63				23·825
		MT 4	80				31·267
6-A 45-MT No.-/ or 6-B 45-MT No.-/	A 45 B 45	MT 2	50				17·78
		MT 3	63				23·825
		MT 4	80				31·267
		MT 5	100				44·399
6-A 50-MT No.-/ or 6-B 50-MT No.-/	A 50 B 50	MT 2	50				17·78
		MT 3	63				23·825
		MT 4	80				31·267
		MT 5	100				44·399

**TABLE 8 DIMENSIONS FOR ADAPTORS FOR TOOLS WITH MORSE TAPER SHANK  
(THREADED END) — TYPE 7**

( Clause 3 )

All dimensions in millimetres.



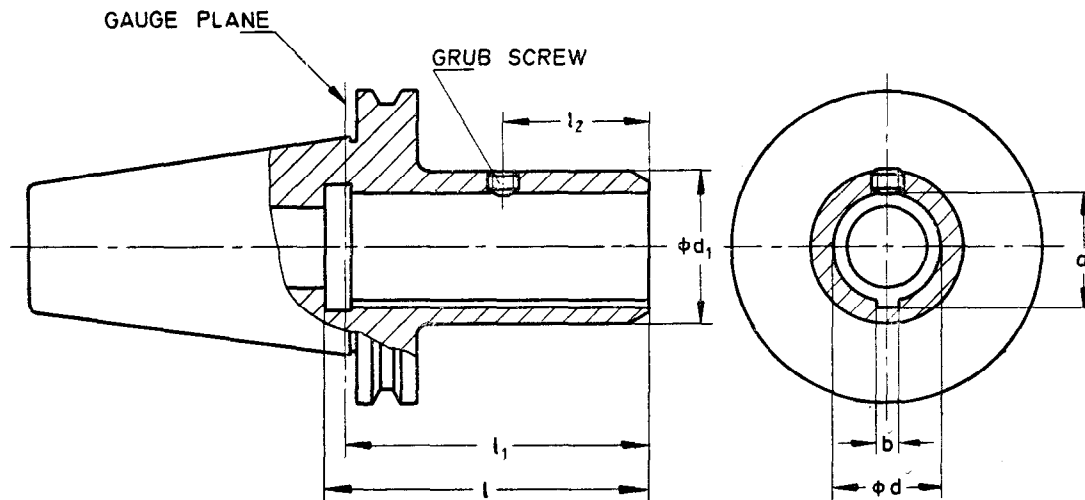
Designation	Tool Shank Designation	MT No.	<i>l</i>	<i>d</i>	<i>D</i>
7-A 40-MT No.-/	A 40 B 40	MT 2	50	M10	17.78
or 7-B 40-MT No.-/					
7-A 45-MT No.-/	A 45 B 45	MT 2	50	M10	17.78
or 7-B 45-MT No.-/		MT 3	63	M12	23.825
7-A 50-MT No.-/	A 50 B 50	MT 2	50	M10	17.78
or		MT 3	63	M12	23.825
7-B 50-MT No.-/		MT 4	80	M16	31.267

**Note** — These sleeves permit driving of tools with Morse taper shanks with tapered end holes with the aid of an internal screw. The form of this screw and fixation in the sleeve are left to the manufacturers' discretion.

**TABLE 9 DIMENSIONS FOR ADAPTORS FOR ADJUSTABLE ADAPTORS WITH TOOLS WITH SELF-HOLDING TAPER SHANKS — TYPE 8**

( Clause 3 )

All dimensions in millimetres.



Designation	Tool Shank Designation	$d$ H7	$l$	$a$ $+0.3$ $0$	$b$ C11	$d_1$	$l_1$	$l_2$	Locking Screw* Size
B-A 40-d1-/	A 40 B 40	28	80	29.7	6	40	85	38	M8 × 8
or B-B 40-d1-/									
B-A 45-d1-/	A 45 B 45	28	80	29.7	6	40	85	38	M8 × 8
or B-B 45-d1-/		36	100	37.7	8	50	106	45	M8 × 8
B-A 50-d1-/	A 50 B 50	28	80	29.7	6	40	85	38	M8 × 8
or		36	100	37.7	8	50	106	45	M8 × 8
B-B 50-d1-/		48	125	50.1	10	67	129	57	M10 × 10

**Note 1** — Adjustable adaptors shall conform to IS : 8919-1978 'Adjustable adaptors for tools with self-holding taper shanks ( in 4 parts )'.

**Note 2** — Extension adaptor shall also be available as optional.

\*Locking screw shall conform to IS : 6094-1981 'Hexagonal socket set screw ( first revision )'.

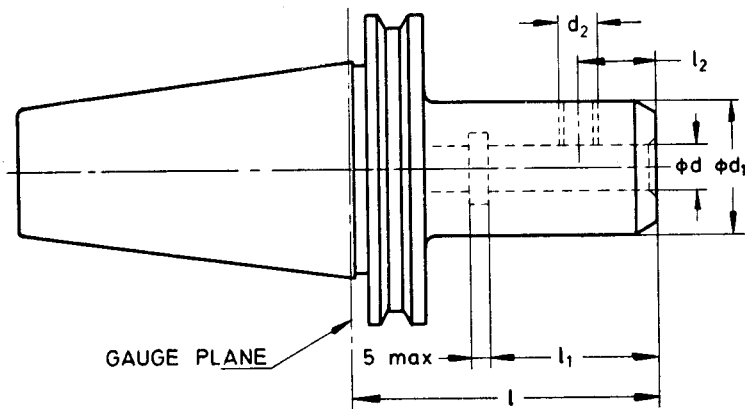




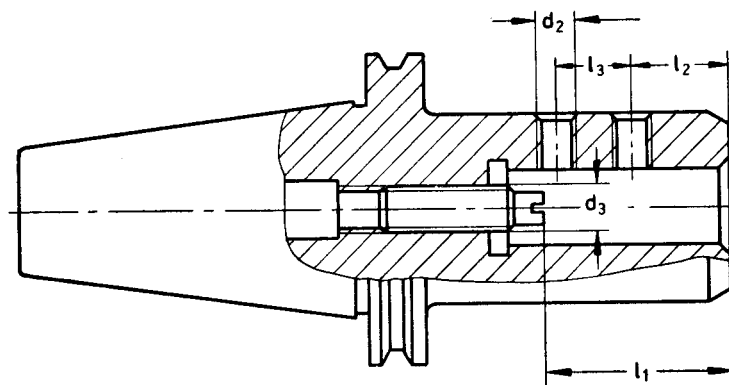
**TABLE 11 DIMENSIONS FOR ADAPTORS FOR TOOLS WITH PARALLEL SHANK — TYPE 10**

( Clause 3 )

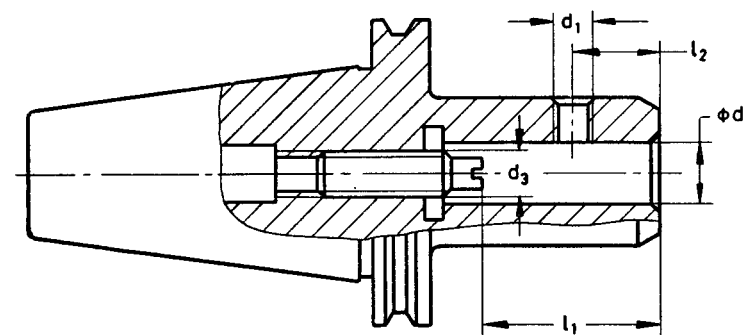
All dimensions in millimetres.



FOR  $d=8$  TO  $12$



FOR  $d=20$  AND ABOVE



FOR  $d=16$

Designation	Tool Shank Designation	d H7	l	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>
9-A40-d-/ or 9-B40-d-/  9-A40-d-/ or									

**EXPLANATORY NOTE**

Type 1 — Form D is not covered in DIN 6385. However, this has been added in view of availability of such boring bars in the market and facilitate use of indexable inserts.

In the absence of any national or international standard on these adaptors this standard has been prepared based on the industry practice prevailing in the world.

**AMENDMENT NO. 1 APRIL 1989**

**TO**

**IS : 11938 - 1987 SPECIFICATION FOR TOOL  
ADAPTORS FOR NUMERICALLY CONTROLLED  
MACHINE TOOLS ( TOOLS ROTATING TYPE )**

( *Page 1, clause 9* ) — Substitute 'Tool adaptors' for 'Tool adapters.'

( *Page 5, Table 2, Fig. form F* ) — Substitute ' $\phi$ s H8' for ' $\square$ s H8'.

( *Page 5, Table 2, col 2* ) — Substitute 'Tool Shank Designation' for 'Total Shank Designation'.

( *Page 12, Table 9, first row* ) — Substitute ' $l_1$ ' for ' $l$ ' and ' $l$ ' for ' $l_1$ '.

( *Page 13, Table 10, first row* ) — Substitute ' $l_1$ ' for ' $l$ ' and ' $l$ ' for ' $l_1$ '.

( EDC 45 )

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